

I-75 Business Loop Construction Project

Roundabouts
and Road diet



Photo from 1962 Freeway Commercial Development Study

LOOKING NORTH

Project Limits

I-75 Business Loop (S. Otsego Ave.) from the southbound I-75 off ramp north to Wisconsin Ave./Grandview Blvd.



Project Overview

Project Limits

- I-75 Business Loop (S. Otsego Ave) from Exit 279 ramps to Wisconsin Ave/Grandview Blvd

Work Includes

- Road rehabilitation
- Curb and gutter replacement
- Multiuse trail construction
- Drainage improvements
- Signal upgrades and roundabout
- Five to three lane road diet

Project Impacts

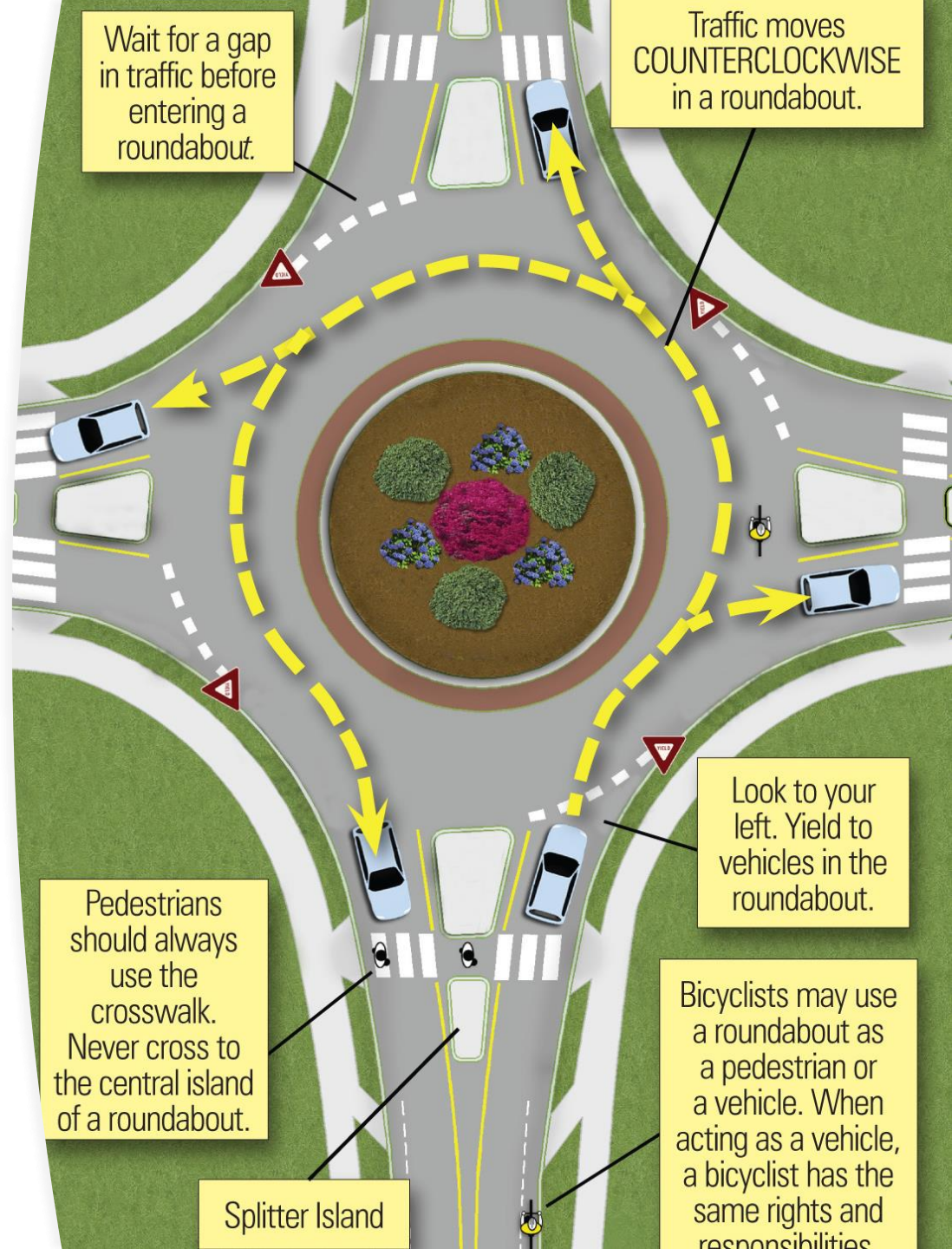
Work will require lane closures and shifts for I-75 Business Loop traffic

Temporary detours for McCoy Road during roundabout construction

Access will be maintained to driveways at all times

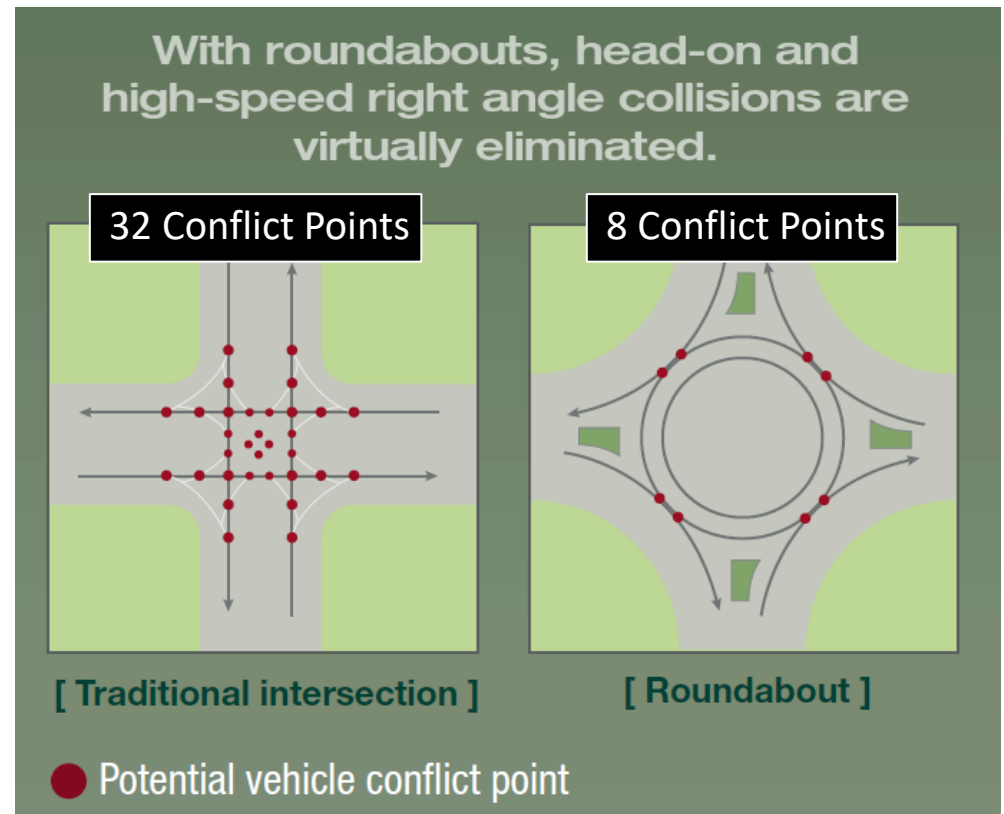
What is a Roundabout?

- Circular Intersection with a center island and splitter islands
- All directions of traffic slow down and yield at the intersection
- Vehicles in the roundabout have the right-of-way
- Traffic travels counterclockwise
- Some roundabouts have crosswalks



Benefits of a Roundabout - Safety

- Slower speeds generally result in less serious crashes
- 90% reduction in fatalities
- 76% reduction injuries
- 38% reduction in all crash types
- 40% reduction in pedestrian/cyclist incidents



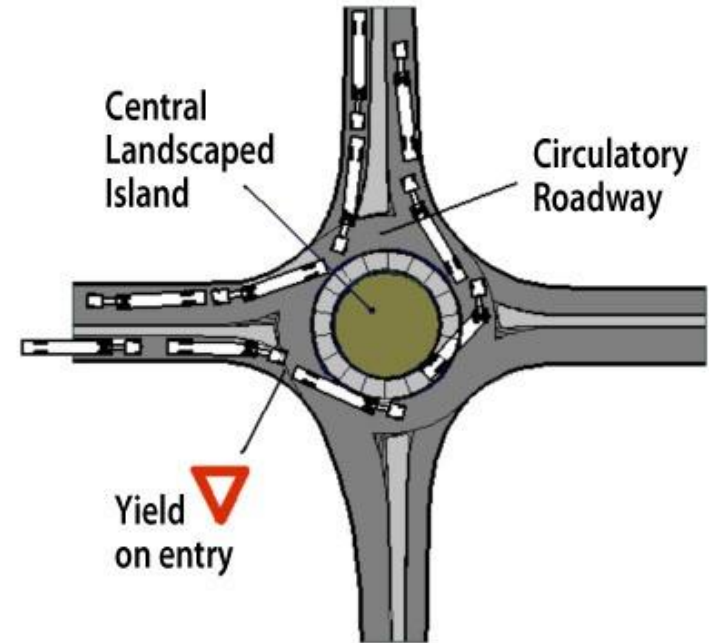
Other Benefits of Roundabouts

- Operates efficiently with low delays, even during peak travel times
- Less delay than a traditional 4-way stop or signalized intersection
- Low maintenance-no signal equipment to install, power, and maintain



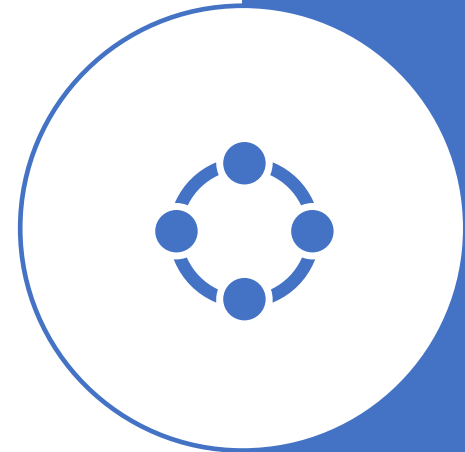
What About...

- Large Trucks
 - Roundabouts are designed to accommodate large vehicles
 - Trucks require more room to turn and their tires may ride on the truck apron - the raised area around the central island
- Emergency Vehicles
 - If you have not yet entered the roundabout, pull over to the right to allow the emergency vehicle to pass
 - If you are in the roundabout, exit the roundabout, go past the splitter islands, and then pull over to the right.
 - **Do not stop inside the roundabout.**



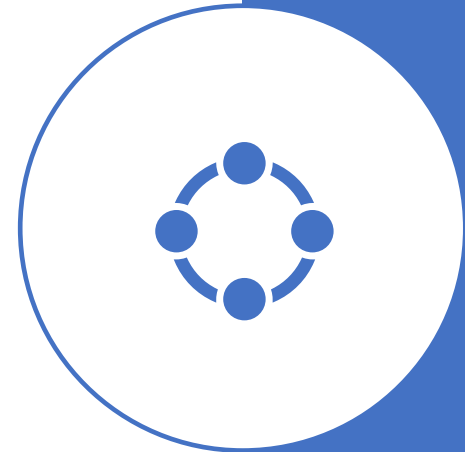
Why Build a Roundabout at McCoy Road?

- MDOT looked into the feasibility of roundabouts at the request of the City
 - Desire to calm speeds and create a gateway into City
- McCoy Road is a significant east-west route and is one of three I-75 crossings in the Gaylord area
- Delay for left turning vehicles is high, especially at peak times
 - Could be solved by adding left turn phasing but this adds delay to other phases

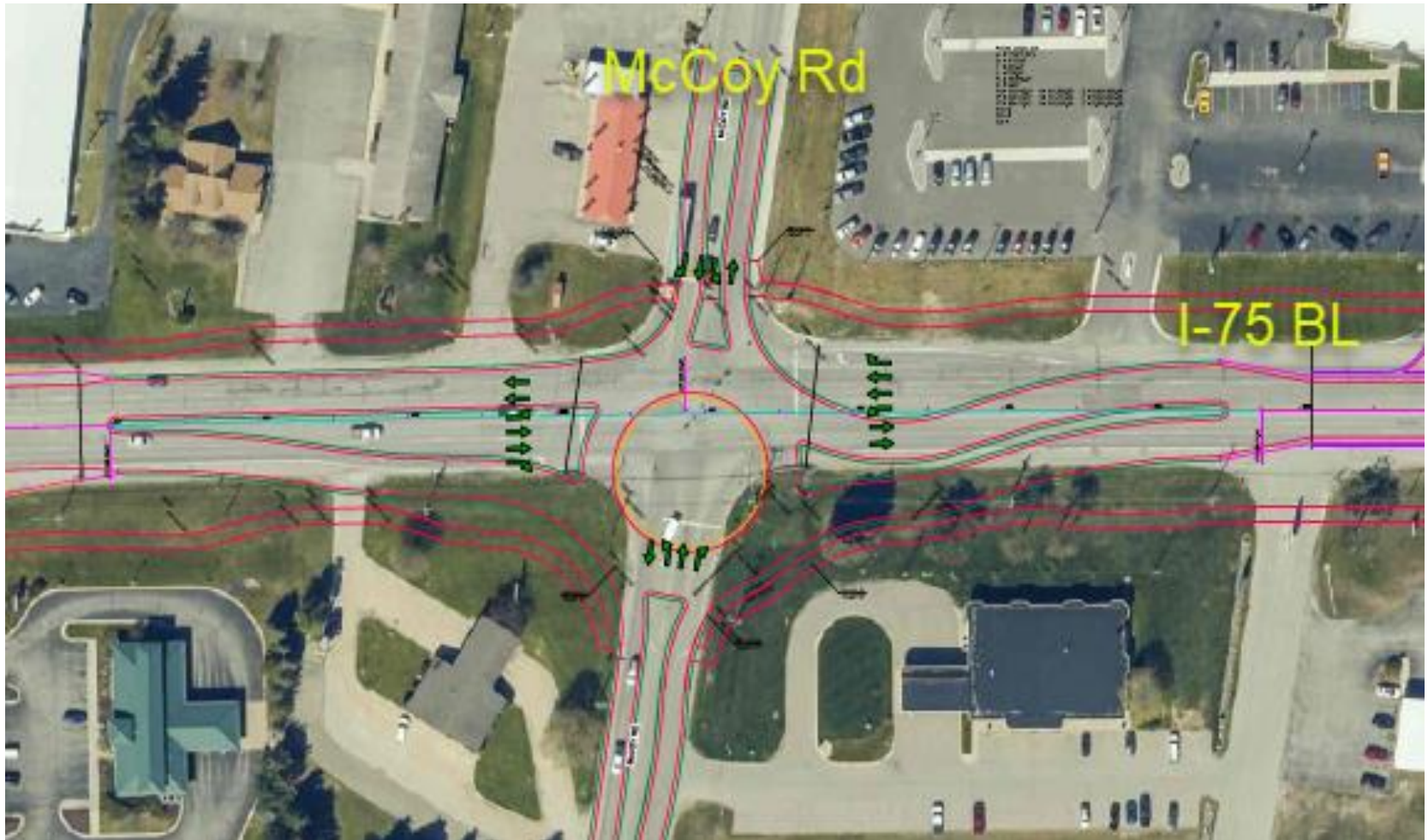



Why Build a Roundabout at McCoy Road?

- Supports rapidly changing volumes that this intersection experiences both daily and seasonally
- Serious crashes will be reduced
 - 52 crashes in past 5 years
 - 2 Type A injuries from Angle Type crashes
 - 1 Type A injury from Rear-End crash
 - 23 of these crashes were Angle type



McCoy Roundabout Mockup



A photograph of a multi-lane road with cars driving, overlaid with text. The road has multiple lanes with yellow double lines. On the left, there are commercial buildings, including one with a blue roof, and some landscaping. On the right, there are more buildings and a yellow diamond-shaped sign. Several cars are visible on the road, including a white pickup truck in the foreground. The sky is overcast.

Five lane to three lane
- McCoy Rd to
Wisconsin/Grandview

5 to 3 Lane Road Diet Benefits

Buffer Space

- Greater separation of multiuse trail from road travel lanes

Slower Speeds

- Lane weaving is eliminated, promoting more uniform speeds and reduced crashes

Walkability

- Reduction of road crossing distance for pedestrians in live traffic

5 to 3 Lane Road Diet Benefits

Sight

- Left turning vehicles are head up
- One instead of two lanes

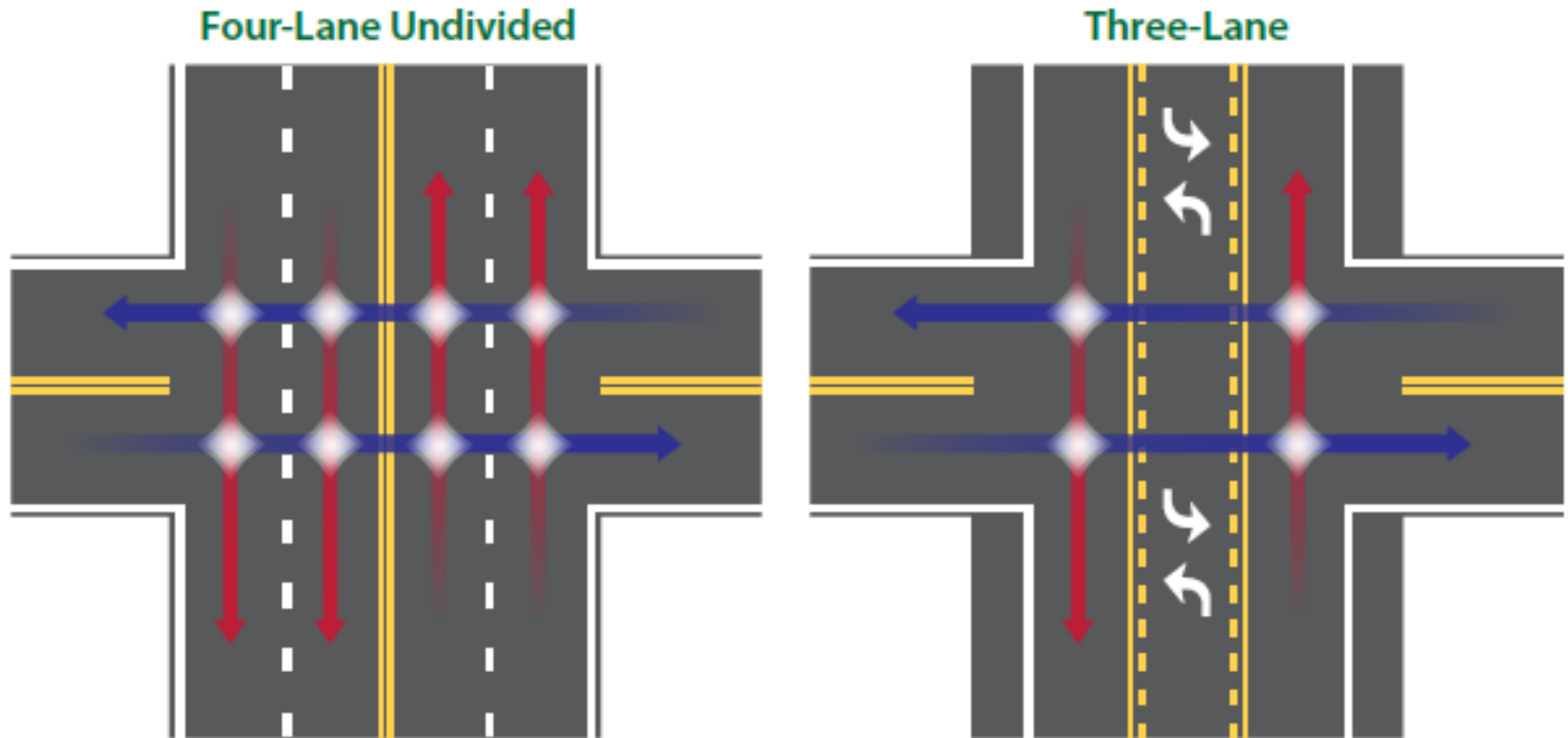
Driveway Access

- Creates more room for ingress and egress of right turning vehicles

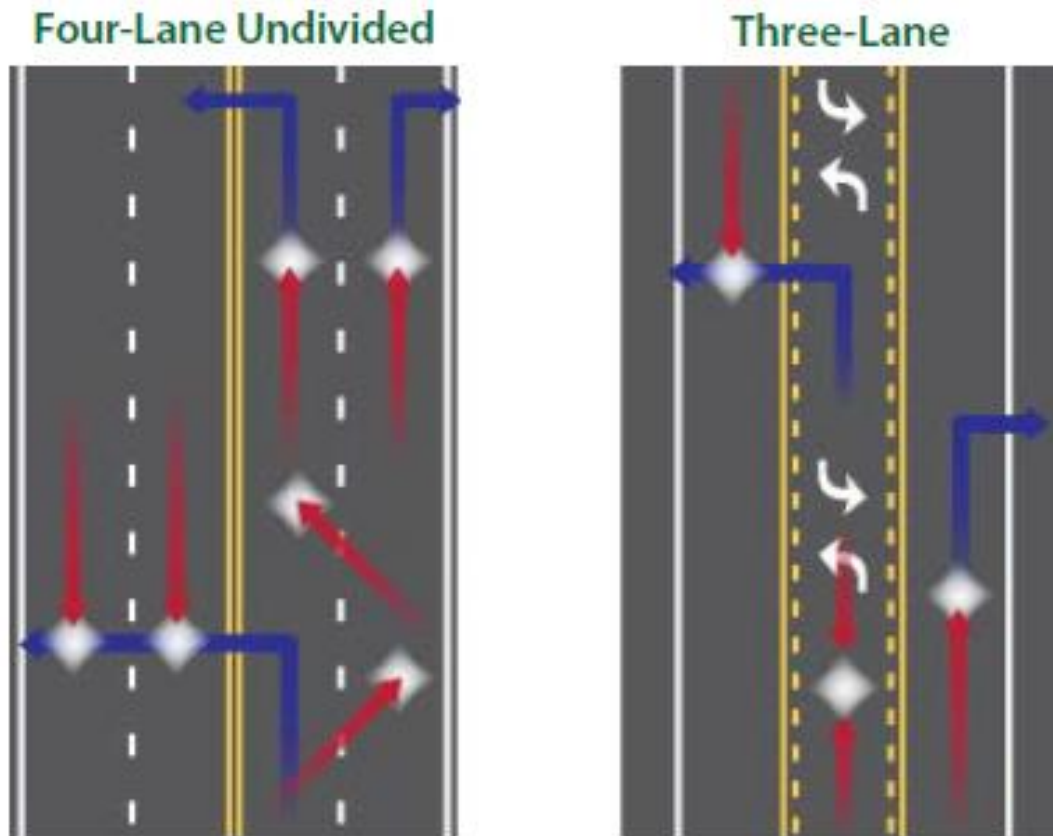
Right of Way

- Creates more separation of vehicles and pedestrians

Cross-Traffic Conflict Points

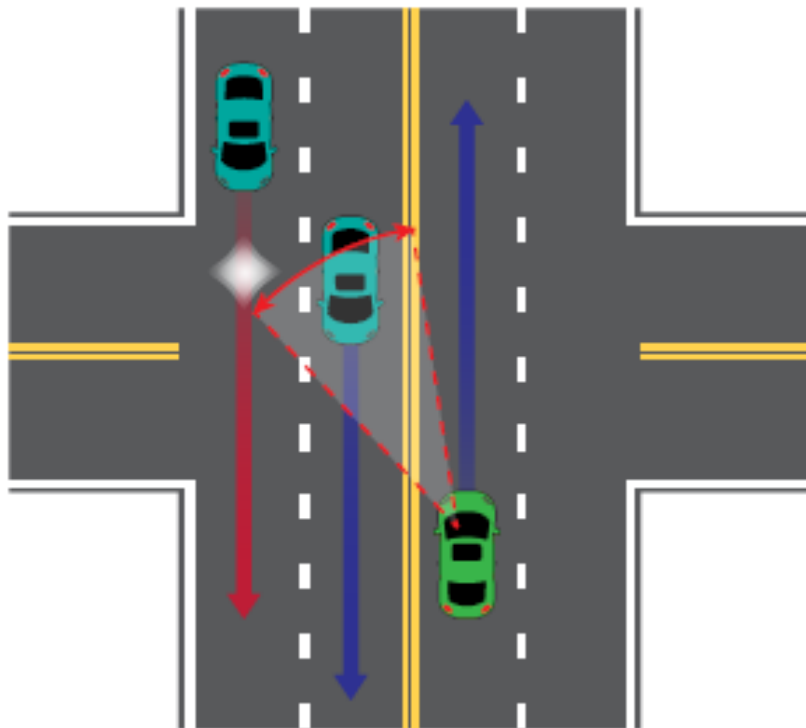


Mid-Block Conflict Points

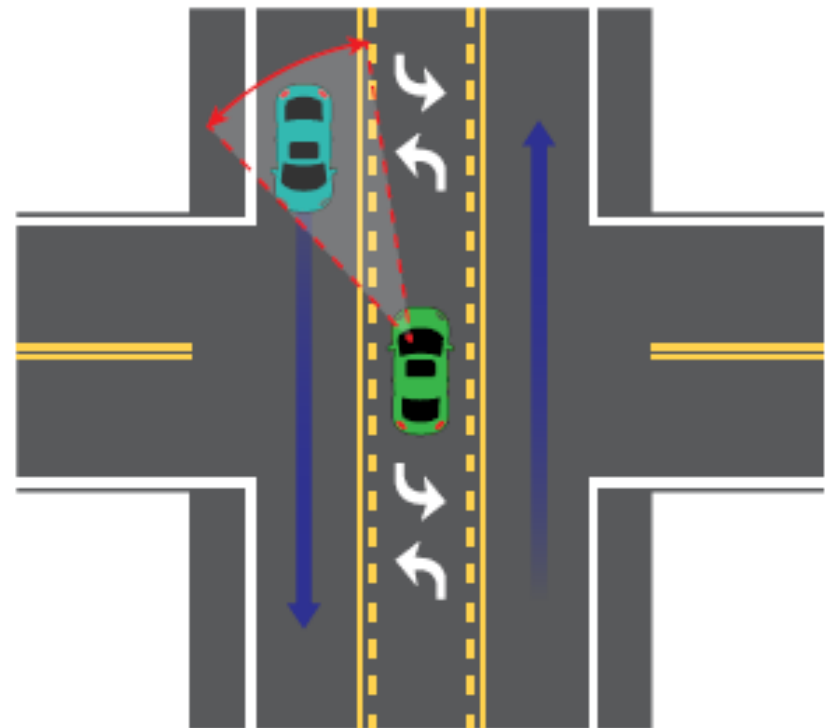


Sight Distance

Four-Lane Undivided
(Outside Lane Traffic Hidden by
Inside Lane Vehicle)



Three-Lane
(No Hidden Vehicles)



EMERGENCY VEHICLE ACCESS



Before

A fire truck struggling to find a path.



After

An easily navigable two-way left-turn lane.

I-75 BL Traffic Volumes

McCoy to Wisconsin AADT (veh/day)

- Year - AADT
- 1990 – 12,800
- 1995 – 15,000
- 2000 – 17,700
- 2005 – 16,200
- 2008 – 15,800
- 2013 – 12,900
- 2020 – 10,550

City of Gaylord

Census

City of Gaylord

- 2000 – 3,681 People
- 2010 – 3,645 People
- 2020 - 3,691 People
- 0.3% increase in 20 years

Otsego County

- 2000 – 23,301 People
- 2010 – 24,164 People
- 2020 - 25,289 People
- 8.5% increase in 20 years

M-32 CASE STUDY

Hazel Avenue to East City Limits

- 6 years of crash data reviewed
 - 3 years before the conversion
 - 3 years after the conversion
- 20 crashes total before the lane conversion
- 3 crashes after the lane conversion (Angle, Head-On, and Rear-End)
 - 85% crash reduction

Signals Level of Service

Intersection	LOS	Delay (sec)		
Grandview Exist	B	14.1		
Grandview Prop	B	16.9		
Commerce Exist.	A	6.2		
Commerce Prop.	B	14.4		

I-75 BL CASE STUDY

Wisconsin/Grandview to M32

- 8 years of crash data reviewed
 - 4 years before the conversion
 - 4 years after the conversion
- 57 crashes total before the lane conversion
- 43 crashes after the lane conversion
 - 25% crash reduction

BENEFITS

- Improves motorist safety
- Improves pedestrian safety
- Promotes traffic calming (uniform speeds)
- Reduces aggressive driver behavior
- Improves emergency response times
- Accommodates bicycles on roadway

EXISTING 3-LANE ROADS

2020 AADT – 10,500

- Petoskey, US-131, Lears Road North to Anderson Road (17,200 AADT)
- Bear Creek Twp, US-31, North of Petoskey (15,000 AADT)
- West Branch, I-75 BL, M-55 South about ½ mile (13,200 AADT)
- West Branch, I-75 BL, I-75 (By Tanger Outlets) North to Wal-Mart (12,100 AADT)

CONVERTED 3-LANE EXAMPLES

- Gaylord, M-32 from Hazel Street west to the East City Limits – 2005 (11,300 AADT)
- Gaylord, I-75 BL from M-32 to Grandview Blvd, 2016 (7,600)
- Alpena, US-23 from Eleventh Avenue to the Thunder Bay River – 2000 (17,700 AADT)
- Grayling, I-75 BL / M-72 from North of M-72 to M-93 – 2009 (14,100 AADT)
- Oscoda, US-23 from South City Limits to Pack Avenue – 2008 (15,600 AADT)
- Lake City, M-55 / M-66 from Union Street to 1st Street – 2006 (11,800 AADT)
- Petoskey, US-31 from Eppler Road to US-131 – 2015 (15,700 AADT)

MORE EXAMPLES

- Eaton Rapids, M-50 / M-99 from M-99 to State Street – 2005 (16,900 AADT)
- Charlotte, I-69 BL from I-69 to Pleasant Street, 2004 (15,900 AADT)
- Grand Ledge, M-100, River Street to Orchard Street, (7,200 AADT)
- Berrien Springs, M-139, Snow Road to Sunset Drive, 2007 (11,300 AADT)



Contact Information

Matt Radulski, P.E.
MDOT Gaylord TSC Operations Engineer
RadulskiM@Michigan.gov